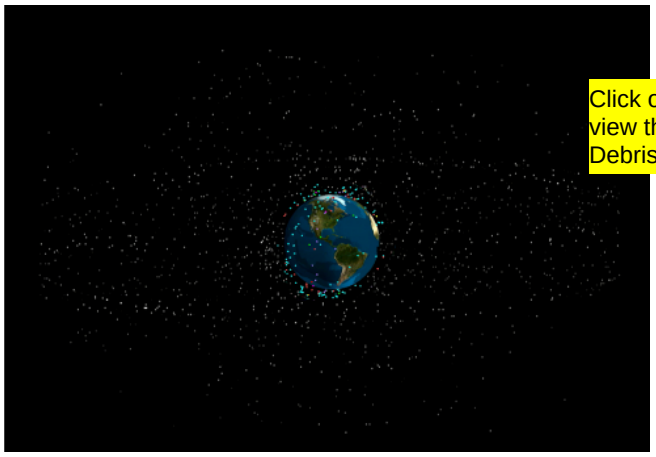
Space Surveillance



The Naval Research Laboratory (NRL) has had a long involvement in space surveillance dating back to the beginning of the space program. NRL developed the first space object monitoring system, called Minitrack for the Vanguard satellites. Following this in 1963, they developed the Navy Space Surveillance System (NAVSPASUR), which is still in operation. This system involves 3 VHF frequency transmitters and 6 receivers stretching across the Southwest United States. In addition the system is supported by a data processing center in Dahlgren Virginia.

Space Surveillance Engineering Sensor Engineering: NRL continues to provide support for the NAVSPASUR system which is currently being transitioned to the Air Force under the title of Air Force Space Surveillance System (AFSSS). NRL supported two engineering upgrades in the 1980s and 1990s as well as current sustainment activities. The point of contact for the Sensor Engineering activities is Ron Beard, beard@juno.nrl.navy.mil (202) 404-7054.

Sensor Calibration: NRL provides Dahlgren with research and operational products on the calibration of all sensors in the Space Surveillance Network. This work supports improvements in observation quality with corresponding improvements in orbit accuracy. The point of contact for this effort is William Scharpf, scharpf@ncst.nrl.navy.mil, (202) 767-0190.

Space Surveillance Processing: NRL has provided long-term research and development as well as operational support for the processing of data at Dahlgren. This work involves space object collision assessment, unknown object correlation and space object catalog maintenance. The catalog maintenance involves a special perturbations orbit determination and prediction system that can provide better than 100-meter accuracy for space objects based on standard tasking of ground based sensors.

NRL also has developed a comprehensive simulation of the AFSSS and can simulate the detection of space objects, processing of observations and maintenance of a simulated catalog.

Acquisition activities leading to selection of an S-Band replacement for the VHF fence was supported by NRL. The procurement has since transitioned to the Air Force and awaits Air Force execution of the contract.

The point of contact for the Space Surveillance Processing efforts is Dr. Shannon Coffey, shannon.coffey@nrl.navy.mil, (202) 767-2818.